/136 cont./

142 The tribe at Gam in particular consists almost exclusively of comparatively large people who, even after a thorough washing, display a decidedly darker coloration than the other Auin.

162 According to my observations, there is something like one to two women for each man, and from two to three children for each woman.

162 847 [862] In this connection I would like to mention that newborn children are always killed if the mother is still nursing a child, which continues until about the third year of life. The killing is done immediately after birth by the mother, who buries the newborn child alive. The father has nothing to do with it. Since marital [853] intercourse continues during the nursing period and since this period lasts for about three years, it follows that approximately every third child is reared while those born in the meantime are killed without exception. This might well be a principal factor in the unquestionable decline in the population.

592 595 Since each woman has her special windscreen (hut), the man lives alternately with one and then another of his wives; the latter in turn have their children living with them, and it therefore follows that about three to four persons occupy each hut.

221 361 The size of the settlements (villages) is quite indefinite and changes according to the circumstances. During the dry season a settlement is formed usually by one to two families, whereas during the period of ample veld food, in other words, toward the end and shortly after /137/ [map appears here] /138/ the rainy season, sometimes up to 30 families join together to form a "village." In April, 1908, about 400 men were living in a settlement near Sidonitzaub. If their dependents are included, one will arrive at a figure of at least 1,000 persons.

[701] All the men are armed warriors.

161 As has already been noted, one can clearly observe a decrease in the population, which, judging by its rapid progress, can be designated as swiftly approaching extinction. Aside from infanti- [136] cide and malaria, the decrease of wild game may also be given as a reason for the population decline, since this decrease makes food more difficult to obtain. Older Auin state that in former times attacks by lions caused heavy losses.

[Text continues on page 7]

!KUNG

[18 cont.]

648 Nogau, the !Kung who are settled in the Sand Veld east of the Omuramba u Omatako are more hostile toward the Whites, and the attitude of the Whites and natives on the farms is correspondingly hostile toward them. This attitude is explained by the fact that only in recent times the Bushmen were forced out of the region west of the Omuramba and now have considerably reduced the scant living space of their brothers east of the dry bed. The living conditions in this region are hopeless. The !Kung live in symbiosis with the tribes along the Okovanggo. Lacking a stable social organization, lacking fixed dwellings in the narrower sense, the Bushmen is much less manageable than, say, the black farmers. Making the tribe collectively responsible, which is the best protection for the European, cannot be used against the Bushmen, and the likelihood of seizing a Bushman who has committed a crime on the edge of the police zone or outside it is zero. One must keep this in mind in dealing with them. On the other hand, I had no bad experiences with them.

[19] The Biological Bases of Life

1. The Number

161 Seiner has estimated the number of the !Kung at about 12,000. Since then, the wars of 1914-15, as well as the steady deterioration of the water conditions, have strongly curbed any increase, so that their number has certainly not risen in the last 20 years.

621 The basic social unit is the essentially patriarchal family horde, which on the average consists of one or two old men, four to six adult men, an equal number of women capable of bearing children, and a number of old matrons, as well as the ● 221 children. Toward the end of the winter they assemble in great 621 numbers at the few remaining watering places; they then meet again when the first veldkost ripens at certain places, frequently several hundreds of them; and then, when summer sets in, they again move in small groups to their family terrain. As examples, 162 I shall give four hordes for which I was able to determine the

[27 cont.]

805 the like, but they have only ten months. They name them after terrestrial phenomena.

!Kai dsáa	It is cold (winter)	June
gama /éi	The grass burns	July-August
!hoá sori	It is hot	September-October
!u shē	The rain begins	November
ǂkhŏ shē	The trees bloom	December
/hō //gāi	It is raining	January
!Khan //gai	The veldkost is coming up	February
!nẫ -mâ	The veldkost is ripe	March
ao ré //kum //ká	The rain is stopping	April
!hoá //gai	The year is at an end	May

They reckon also from harvest to harvest.

●221 The most beautiful time in the life of the Bushman is March and April. Even those who live on the farms hurry into the wilderness at that time. At certain places where there are many fruit trees, such as the marula, the friendly kin groups gather from far and wide. Here the young men look for brides, and there is much dancing, because at this time the women are not tired from seeking veldkost which is now to be found everywhere. Hunting yields less at this time, since the game has water and pasture everywhere.

Soon, however, the leaves fall, the bush forest becomes red and yellow, the migratory birds fly northward, and then the first [753] cold nights set in. Now the "Dsao" (spirits of sickness) come and bring sickness to the chest. At the end of May and the beginning of July [sic] the first frosts set in. Now the Bushmen move to the watering places, which stay open for a long time. The nights now [374] become torture. Burns on the skin of the chest and abdomen oc- [513] cur frequently, because the Bushmen now lie very close to the fire to sleep. Around this time, some of the kin groups already begin to suffer distress, because the game moves to other regions where there is still some pasture. In July the grass is finally dry [224] enough so that it can be set afire. Now the entire steppe burns. The young grass again attracts the game; hunting improves. The hot season is the worst period; the resting places of the game are quite uncertain, veldkost becomes increasingly scant, and the

[27 cont.]

221 Bushmen shrink to miserable skeletons. Many of them at this [648] time run to the Blacks or Whites in order to earn something. In [731] dry years no attention is paid to the kin group boundaries. All [423] gather around the few water holes that are still open. As soon as the rain begins, conditions start to improve; the people start moving out in various directions, not to meet again until several months later at the time of the veldkost harvest here and there.

7. The Course of Life

584 I shall render in literal translation the account that my informant gave of the way a young man courts a girl:

If a young man wants to marry a girl, he must first speak to her and say: "I love you and want to marry you." If the girl is willing, she says first: "You must wait." Then she goes to her parents and asks them whether they have heard that the boy has spoken to her. The parents then ask whether the girl wants to marry the man. [28] If the girl says, "Yes," then the parents say, "He wants you; he has seen that you are good and hard-working; you may marry." If, however, the young man has thought the matter over and takes back his words, the girl goes to her parents once more, and the boy to his. The latter say: "You wanted it this way; nothing can be done about it." In case the girl definitely gives her consent, however, the young man brings all kinds of little presents and gives them to his future bride, who takes them to her parents. The parents-in-law must now in turn give presents. With the exchange of presents, the [583] marriage is regarded as legally concluded.

[114] 224 584 [113] The hunting test described by Passarge (1) and others is not

1. Passarge, Die Buschmänner der Kalahari, 1907.

the rule. Some vain girls demand it, and sometimes young men will voluntarily go through with it in order to beat his rivals. This hunting test is carried out in the following manner. The boy goes hunting without weapons and pursues the game (as a rule,

1 [i.e. The hot season -- Analyst]

6:Marshall E-5 (1950-1955) 1957 FX10 Bushmen FX10
Kung

dangerous.' When they do they use the word *n|oi*. It is a word for gentle rain, and also a respect word. They use it for male rain when they are afraid of it and avoid its real name, */ga /go*.

The rains of the western Kalahari are local, falling from clouds which the winds herd. They may fill one pan and miss another. Laurence Marshall spent one whole night, tentless, in a drenching downpour, to find in the morning that a mile away no rain had fallen. But by and large the rains are sufficient in quantity and well enough dispersed to fill most of the water-holes, pans, and hollow trees, and to revive the growing things, so that the autumn months, which follow the rains, are good—the best of the year. Then the /Kung may travel anywhere within their territories to hunt and gather the fresh veldkos. The rains are life-giving.

Winter is the season of dryness. It is also the season of burning sun in the cloudless sky by day and freezing cold when the sun sets. Bitter winds catch up the sparks of the fires at night and whirl them in blazing streaks into the darkness. If water is left in an open bowl, it may be ice in the morning. By mid-winter, July, there has been no rain for three or four months. The pans and small water-holes are dry. Though there are still foods to be gathered, like the mangetti nuts in the northern forest, there is no water on the route, nor in the white sand dunes where the mangettis grow, and the people cannot carry enough in their ostrich-egg shells to go to the mangettis and return. In 7,500 square miles of the interior of the region around Nyae Nyae, there are only five water-holes which do not dry up in the winter and spring. The /Kung bands must gather around whatever permanent water-hole they belong to and restrict their hunting and gathering trips to conform one way or another to the problem of water. This region, incidentally, does not abound in tsama melons and, though there are succulent so-called ' water ' roots to be found, they seem not to be sufficient to support whole bands for long. The Nyae Nyae bands, it appears, cannot, or at least do not, base themselves for long periods away from their water-holes.

The spring months which follow the dry months of winter are the dangerous months. The sun is scorching. Fruits and leaves shrivel; the edible roots, stirred by the few tantalizing drops of the little rains, or just because it is spring, give up their juices to the first new shoots and are dry and bitter to eat. The people longingly await the rains, saying it is the sun which dries the water-holes and the plant foods. The /Kung of this region use one word for both sun and dryness, */kam*, and say the sun is death-giving.

In their beliefs about *n|ow*,[1] which they think influences the weather, as this paper will describe, they make an antithesis between rain and cold. This seems paradoxical when one experiences the devastating heat of the sun in September, October, and November, but the resolution of the paradox may lie in the fact that the hardships of the dry seasons begin with the rainless winter months and their bitterly cold nights, so that sun, dryness, cold and want become a complex which is in antithesis to rain and plenty. *N|ow* is called ' bad ' if it brings cold, ' good ' if it brings rain.

Mrs. Hoernlé[2] records a Hottentot belief called */nau*. The word appears to be

[1] We spell the /Kung word *n|ow* in this way because it rhymes with ' how '. We wish to distinguish it from another /Kung word, */naw*, which it closely resembles, but which has a slightly shorter, more closed sound. */Naw* means ' old man ', according to Miss Bleek's *Bushman Dictionary*. We heard it used as a term of respect in addressing old men.

[2] Hoernlé, Agnes W., ' Certain Rites of Transition and the Conception of */nau* among the Hottentots ', *Harvard African Studies*, ii (1918), pp. 73–77.

the */hawa-omi* in a similar manner. The same procedure is gone through for three or four days in succession. On the last day, after the dancing has ceased, she is presented with various trinkets by the women who took part in the ceremony and, after she has been returned to the */hawa-omi*, the *axarogu*, who are required to remain in the *//gāus* for the occasion, are summoned to pass in Indian file behind her hut. As they pass each presses his scrotum against her hand which is protruded through a very small opening made by her mother in the back of the hut and she touches it with fore-finger and thumb. This is done to protect the *axarogu* against sexual disease (swelling of the testicles) which is caused by treading on the place where a menstruating */gari-khois* has urinated. If she does not touch the scrotum and such a lad should pass behind her while she has her periods, his testicles will become swollen. The same will happen if she were to tread on the urine of such a boy. When this happens the youth is said to be */gou*. After all the *axarogu* have filed past and returned to their hut, an old woman enters the */hawa-omi* and rubs her body down (*/u*) with a preparation of roots, the name and source of which could not be ascertained. Now two of the *≠kham-khoidi* come forward and take her to fetch water. This is done at a run, the water being brought quickly and placed at the hut of the old woman who rubbed her down. Then two other *≠kham-khoidi* take her to fetch wood. This is likewise done at a run and after the wood has been deposited the ceremony is over. She is now a woman and known as a */gari-khois*. While the ceremony was in progress a new hut, which is known as the */gari-khois oms*, was built for her by her mother. In this she now takes up her residence until she marries. [844] [751] [882]

The *≠gari-khois* is now eligible to marry and she accompanies the married women on their various excursions for food, wood, etc., and associates with them. The food collected during the four or five days following her transition to womanhood is eaten only by very old women, *e.g.*, the one who rubbed her down. After that any food gathered by her is shared with her mother. She may subsequently not go to the veld to gather veldkos while she is menstruating, but must remain in the *//gāus*. On such occasions she is fed by her mother. 883 [844]

Boys are subjected to the ceremony of initiation after reaching the age of puberty and as soon as they are considered to have become proficient in the pursuit of game, especially big game. The ceremony is in reality a test of their powers of endurance and of their skill in the chase. It is always carried out during the rainy season when food is plentiful. All the eligible lads are removed to a spot some distance away from the werft and placed under the charge of one or more of the elders of the group. An enclosure is made round a big tree and in this they are required to live for the time being. They sleep in the enclosure and the elders around the fire which is made at its entrance. Women are not permitted to approach or communicate with them during the course of the 881 [221]

are indicated by the *gei-khoi*s. On the return of the women 222
to the *||gãus* they deposit the bags containing the fruit in
front of the hut of the *gei-khoib*. The *gei-khoi*s then fills
four or five basins by taking a little from the bag of each
woman and places them under the *!hei*s. Her husband now
kindles the *!hei/ai*s and, after having applied *‡norab* and
dabas to appease the fire for a plentiful harvest, takes a
handful or two of the fruit and eats it. The fruit is now free
and both men and women may eat it. There is no name for
this ceremony, but the first fruit is called *!gao-ei-/un*.

Among insects, locusts, ants, scorpions, young bees and 262
honey are greatly relished. Frogs, lizards, snakes, etc., are
also eaten. In fact, all living animals are eaten with the
exception of the mole and the hyena, the former because its
winter larder of öintjes forms a valuable and easily obtainable
addition to the supplies of the Bushmen and the latter because
it eats human corpses.

The methods used in the pursuit of game vary according 221
to the season, the year being divided into a cold, dry season 224
(winter), a hot, dry season (spring and early summer), a
small, rainy season (September and October) and a big, rainy
season (January to April). Snaring is resorted to only during
the dry season in the case of such animals as guineafowl,
bustard, aardvark, ostrich and small game. Pitfalls are not
made use of except for hare and springhare as too much
work is entailed in making them. Springhare and snakes
are also caught by means of a long barbed stick which is
passed into the burrows, the animal being transfixed and then
dug out. During the big rainy season when the ground is
sodden with moisture small buck such as duiker and stembuck
are run down on foot and killed with a knob kirri. This
method is not applicable to small game during the dry season
owing to the difficulty in following the spoor. In the hot
weather, however, young buck are easily caught in this
manner as the hot sand causes the hoofs to come off. The
gemsbuck does not tire easily. It is run down, therefore,
only during the big rainy season when the soft ground impedes
its progress and causes it to be caught comparatively easily.
All other varieties of big game are run down in the hot, dry
season. After a herd of game has been located one or more
men give chase at a steady trot. The animal is pursued
relentlessly until it is exhausted and brought at bay, when it
is killed with assegaai.

Bow and poisoned arrows are used all the year round. These 184
weapons differ considerably in character in various localities. 411
The Kalahari bow is small compared with that used by the
!Kũng of the Oschimpoloveld, and *Hei-||om* of the Etosha
Pan region; the arrow consists of a reed shaft, bone foreshaft
and bone or iron tip, whereas the latter use arrows with
feathered wooden shafts and iron tips only. The poison also 184
varies in different localities. In southern Namaqualand it 278
is constituted of a mixture of plant juice (euphorbia), snake
poison, scorpions and spiders; in the southern and central

9: Thomas T-5 (1951-1955)1959
FX10 Bushmen FX10
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know, but Gai became embarassed and said gravely that Pishiboro put that system there for reproduction and he alone knew how it worked.

Ukwane then said that he would explain instead, because he was an old man. Gai could not speak of sex in front of women because it was both improper and dangerous and would weaken his power to hunt, but Ukwane was too old for hunting and, besides, was past the age when many of the tabus concerning sex applied to him. Old Bushmen understand everything better anyway, young Bushmen say.

Ukwane knew a great deal. He named every major part, inside and out, of the animal, even naming the major veins and arteries that lead to and from the heart. We were not surprised to find that Bushmen, who prefer to be specific rather than general when dealing with minute things, distinguish more exterior parts of the body then we do. They have names, for example, for the inside of the elbow and the back of the knee. The *leg* of an animal means the hind leg, the front leg is the *arm*, and these are called by the same names as the arm and leg of human beings. Birds, too, fly with their arms and land on their legs, but I never could discover what insects do.

Ukwane went on to explain the various systems of the body, saying in the case of the urogenital system that liquid, which was "the little springboks," ran from the testicles into the kidneys, then down again and out the penis. He stuck to this version, too, even when Bill suggested that it might be otherwise. This does not mean that Bushmen think that urine causes conception, for they recognize the role of semen, believing that it unites with the menstrual blood of the mother to form a child.

Ukwane understood the course of food and water through the digestive system, but said that food and water spread out

11: Marshall E-5 (1950-1955) 1958 FX10 Bushmen FX10
Kung

WOMAN OF WERFT gather children and possessions in preparation for march to a new campsite. A band can travel about ten miles a day, gathering food as it goes. The !Kung move in annual patterns: staying near waterholes in dry winter, visiting *mangetti* forests in moist summer, and *tsi* areas in fall.

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[P.39]

11:Marshall E-5 (1950-1955) 1958
FX10 Bushmen FX10
Kung

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484 food resources of *Nyae Nyae*. Instead, these are the *mangetti* and *tsi* nuts. Both are found only far from permanent water. Distance becomes more significant when one thinks not only of miles—but of time, footsteps, heat and carrying capacity. From the nearest western water, it is about twenty miles to a *mangetti* forest. The distance between *tsi* and the closest water is about seven miles. The [481] people calculate their marching ability at about ten miles a day, with women and children, although men can make forty if necessary. They gather food as they travel, for a day of traveling is just like any other day, with children and old people to be provided for.

221 In order to exploit the environment successfully, with their limited technological equipment, the !Kung must move from place to place. The calendar of their movements is revealing. In winter, the people are forced to remain near the waterholes,

[p. 63]

11:Marshall E-8 (1950-1955) 1958
FX10 Bushmen FX10
Kung

● 221 gathering in districts and making occasional trips to places where enough water-roots can be dug to support them for several days. When the "little rains" of spring come to *Nyae Nyae*, the land usually relents somewhat. Some of the small western and northern pans fill, and a hollow *mangetti* tree may have collected some water. The people, who keep track of conditions throughout *Nyae Nyae* from the reports of hunters and visitors, try to get to the *mangetti* forests as soon as possible, and bring

11:Marshall E-5 (1950-1955) 1958
FX10 Bushmen FX10
Kung

221 back as many nuts as they can carry.

THE "big rains" open the land. People travel to distant places and remove to the *mangetti* forests until autumn, when the *tsi* ripens. Then they remain in the *tsi* areas till the *tsi* nuts are exhausted—which sometimes happens before the small annual waters have evaporated — and finally make their way back to their permanent waterholes.

221 415 In such a transient life, the importance of light belongings — and

[p. 67]

11:Marshall E-5 (1950-1955) 1958
FX10 Bushmen FX10
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of ostrich eggshells for carrying water and skin bags for food—is evident. With carrying bags and ostrich eggshells, the people can bring water to food and food to water. Partly because of their life of motion, the !Kung do not accumulate heavy wealth.

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Infanticide is uncommon among the !Kung, but one of the various reasons for the practice is that a woman may feel she cannot carry another child when the band moves. Then, the baby is born into a tiny grave near the *werft*, and the grave is closed.

[p. 68]

15: Marshall E-5 (1951-1961) 1965
FX10 Bushmen FX10
!Kung

The poisoned arrows of the Bushmen are as deadly to man as to game and they are always at hand. A mere nick and a speck of poison in the bloodstream can be fatal. There are no known antidotes.

As skilled trackers of game, Bushmen develop their powers of visual observation and train their visual memories to such a high degree that they know everyone's footprint as well as his face. This is another deterrent, for no one could steal veldkos without leaving his marks and having his identity detected. Theoretically, in !Kung society the thief may rightfully be killed by the person or the band from whom he has stolen, but he may fight back, and relatives could also become involved and the fighting would spread. In the opinion of the !Kung, situations likely to engender hostility are assiduously to be avoided, to say nothing of actual fighting. Breaches of this intention are very rare.

Life throughout the seasons is planned around the veldkos gathering. The people know at what seasons the various veldkos will ripen and about how much each patch will yield if the rains have been good or if they have been poor. The !Kung are not, according to our way of thinking, exactly conservation-minded, but they do plan to consume their veldkos in advantageous order. They eat the perishable short-seasoned leaves and the few fruits as soon as they ripen. They leave until the dry season is advanced certain beds of roots and tubers that are edible the year around if they remain in the ground.

The headman of the band has the authority and the duty, according to !Kung social regulations, to plan the band's movements, to say to which veldkos area they will go and when, and, if the band separates temporarily into segments, to know where each segment is going and, in general, what veldkos it will consume. It is a matter of life and death to plan and control as best they can and not to travel for days, counting on food and finding that one segment of the band has eaten it all, unbeknown to the others.

Each type of veldkos and each area presents its problems of logistics, water being the determining factor in the plans, for usually water and veldkos are not in the same place. During the big rains and for several weeks after, the pans and vleys become shallow ponds and small, temporary water holes are filled. It is the time of relative plenty. The people find sufficient water to enable them to move about with comparative freedom in their country, wherever there is something to gather. When the dry season sets in, the problem is to carry enough water from the water hole to the veldkos area in ostrich egg shell containers and to carry enough veldkos back to the water hole. It is a ceaseless labor.

The distances the !Kung travel between water and fertile areas in these gathering trips vary from a few miles to twenty or thirty. The people do not manage greater distances except in the rainy season, when they go as far as seventy-five miles to a mangetti forest.

When the people go to gather mangettis or *tsi*, the men always ac-

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A Bridal Scherm The groom, to the right, and the bride, to the left, are with companions. This scherm is a particularly well-built specimen of the Bushman house.

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digging stick in a crescent curve, and tamps the branches into them. She weaves the branches together at the top and perhaps ties a few with fiber cord. This makes a frame half a hemisphere in shape, four to five feet wide on its open side, three to four feet deep, and perhaps five feet high at the peak. The woman then lays armloads of grass against the branches.

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The fire, not the scherm, is the visible symbol of home for a !Kung family. Summer and winter, each nuclear family has its own fire. The families cover their coals with ash during the day and fan them up for cooking. Toward evening, men and women go to the veld to gather wood and bring back whole dead trees, enough to keep their fires burning brightly all night.

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The werf is the group of fires of all the families in the band. A !Kung werf has no fixed pattern of orientation except to cluster closely together. With all space around them, the band with whom we lived—Band I of Gautscha, consisting of thirty-two persons with eight family fires—usually huddled into a place roughly forty to fifty feet by about twenty. The light and warmth of their fires together wall them in from infinity and darkness and protect them from predators.

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The !Kung never return to a werf they have once abandoned. They come season after season all during their lives to the same water holes and veldkos areas, but always choose a fresh spot to make a new settlement.

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ARTIFACTS · The artifacts of the !Kung are simple and few but well made and well cared for. These people use stone only for sharpening metal blades,

[P. 256]

working on farms. Many of the Pandamatenga Bushmen work in Victoria Falls and Livingstone. Some have gone as far afield as Lusaka and Salisbury looking for work. The Kwengo Bushmen of Barotseland no longer maintain a hunting way of life. (Clark, personal communication). Their numbers are estimated at 200.

This tally of Bushmen hunter-gatherers gives a total of 9,300 against an overall total of 44,100 Bushmen. Twenty percent of the Bushmen hunting full time seems a much more reasonable proportion than Tobias' 64 percent. It is unlikely that a change of such magnitude could have occurred between the date of his census (1956) and the present one (1964).

The figure of 9,300 is nevertheless quite substantial and indicates the remarkable persistance of the hunting-gathering way of life in spite of the fact that even the most isolated of the hunting tribes maintain close contact with their European and Bantu neighbors. A large proportion of the /Gwi Bushmen of the Central Kalahari Game Reserve spend part of the dry season squatting on European farms adjacent to their area. In the north the hunting !Kung often share their waterholes with Bantu cattle herders. Most of the young !Kung men spend a year or more working as cattle herds on a contract basis.

ooo As far as is known, all Bushmen hunting today have had

184 The northern !Kung of Angola and Ovamboland are closely
648 associated with Bantu agriculturalists. In 1925 Bleek ob-
222 served that "In contradistinction to the southern !Kũ the
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439 women and children (i.e. of the Angola !Kung) are not collectors of wild food. Once or twice a year when certain berries ripen, the whole tribe goes out berry picking; otherwise they live by hunting and bartering part of the meat and skins obtained for the agricultural produce of their neighbors...." (1928:108). Westphal visited the Angola !Kung in 1964 and confirmed Bleek's observations (Westphal personal communication).

184 The southern division of !Kung work on the European
• 221 farms in the Ghanzi and Gobabis districts. Many of them
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648 spend the summer months in the veld, hunting and gathering, but return each year to winter on the farms (Silberbauer n.d.).

Among the central division of !Kung are found Bantu-associated peoples, farm laborers, and independent traditional hunters and gatherers. In the Grootfontein district of South West Africa several thousand central !Kung are working
131 on European farms. Along the Okavango river for 500 miles
184 of its length from Cuangar in the northwest to Sehitwa on
648 Lake Ngami, some further thousands of central !Kung live with, and work for, the Bantu of the following tribes:

621 312 Similar variations in group structure were observed at all the waterholes of the Dobe area. However, despite these shifts in the size and composition of camps there were two lines of evidence that indicated stability. First, there was a generally acknowledged nucleus of permanent territorial residents at each waterhole. Second, when camps split up they did so consistently along the same lines of fission. The presence of these two regularities provides a basis for a preliminary account of the living arrangements of !Kung Bushmen. The complete documentation and analysis of group structure will be presented in a later paper.

[125] The starting point for this account is a single complete census of the Dobe area made by the author in November, 1964. This was a good time for a census because it is the period of [221] the year when the camps are most stable. It was the end of the dry season when most of the Bushmen were restricted to their permanent waterholes.

621 161 162 This census showed a total population of 433 Bushmen divided among 35 living units. This figure of 433 includes ten individuals who died in the year preceding the census, and 32 others who were away from the area at the time of the census, so that the total number of Bushmen who were actually physically present in the area in November, 1964, was 391. The majority of the people (311 individuals, 72% of the total) were living in 15 independent hunting and gathering bands.

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361 standing water sources. Since the number of these water sources is limited, it follows that the areas around the water sources will be the most intensively utilized. The Bushmen know how to live on alternative sources of moisture such as Fockea monroi but only resort to this subsistence strategy for a week or two at a stretch.

It is a good rule of thumb for the Dobe area that the intensity of utilization of land varies inversely with the distance from standing water sources. Since a Bushman group
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312 must spend the six dry months of the year at its permanent
361 waterhole, it is not surprising that the area within a walking
• 221 radius of this waterhole is intensively utilized. Similarly, since the Bushmen spend three months of the year at the large summer water sources, the areas within a walking radius of these water sources is also intensively utilized. During the brief period in December or January when there is standing water at many localities, the Bushmen can utilize areas that lie beyond a walking radius of the major water sources.

These three levels of intensity of utilization are illustrated schematically in Map 15. This scheme disregards for the moment the actual pattern of distribution of food resources peculiar to each territory. The shaded circles enclose all of the areas that are within a six mile radius of a permanent waterhole. These are the only areas that can be reached by

[TEXT CONTINUED ON PAGE 144]

16: Lee E-5 (1963-1965) 1966 FX10 Bushmen FX10
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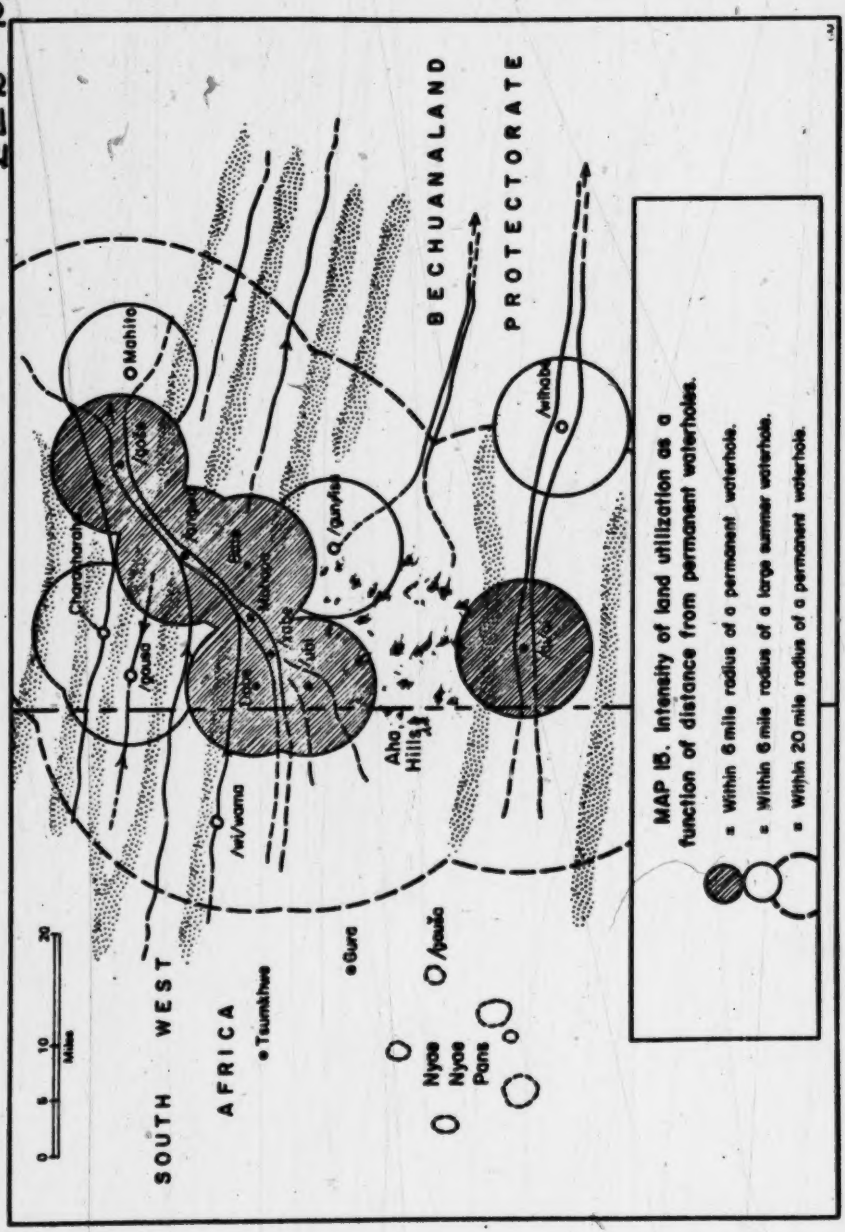
BECHUANALAND
PROTECTORATE
SOUTH WEST AFRICA
Mahilo
/gunda
Aho Hills
Nyae Nyae Pans
Tsumkhwe
Gura
/Aipaša
MAP 15. Intensity of land utilization as a function of distance from permanent waterholes.
= Within 5 mile radius of a permanent waterhole.
= Within 5 mile radius of a large summer waterhole.
= Within 20 mile radius of a permanent waterhole.

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221 a round trip hike of 12 miles or less.

The distance of 12 miles was chosen for this illustration, because this was close to the maximum distance that the Bushmen were willing to walk in a single day of food gathering. In the previous chapter it was mentioned that Bushmen hunters and gatherers do not stay away from their camps overnight. Therefore an individual hunter or gatherer will confine the day's activities to within a limited radius of his or her camp. These expressed preferences set the limits on the size of the winter areas of intense utilization.

A similar situation exists in the areas that are within a six mile radius of the main summer water sources. These are represented on Map 15 as unshaded circles. These further areas are intensively utilized during the summer months.

These areas of intensive utilization are surrounded by a belt of country that lies within a twenty mile radius of the permanent waterholes. Twenty miles was the average maximum distance from permanent water that the Bushmen were observed to range. This belt is enclosed by a dotted line in Map 15. It should be noted that the Bushmen groups spent on an average less than one month of the year working these areas. The great majority of their time was spent closer to the standing water sources.

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361 The Dobe area Bushmen were not observed to make camps

16: Lee E-5 (1963-1965) 1966 FX10 Bushmen FX10
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VIII. WATER AND THE SEASONAL ROUND

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The Kalahari desert is not a food poor area. Most of it is situated between the 10 and 20 inch isohyet and therefore it is marginal for cultivation (without irrigation), but the desert supports a remarkable abundance and variety of edible wild plants which have become genetically adapted to arid conditions.

Geographers have classified the Kalahari as "desert" because of the lack of surface water (Wellington 1955 etc.). This in turn is a function of the sandy terrain which supports surface water only during a brief summer season. In the few localities where the underlying geological formations are exposed, permanent standing water is found. And these point sources of water are usually surrounded by waterless belts of up to 200 miles in width. Edible plants on the other hand are widely distributed both in the immediate vicinity of water and at considerable distances from it. The geographical separation of food and water in certain seasons is the critical problem of !Kung Bushman subsistence.

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This is not a major problem during the rainy season when seasonal standing water may be found in close proximity to the concentrated food resources. Nor is this a major problem during the early winter when food is available around the

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824 permanent water sources. Nevertheless for one season every year Bushmen must face a situation in which major foods and permanent water are a considerable distance apart. How Bushmen arrange their lives to meet this situation will be illustrated by data from the Dobe area !Kung Bushmen.

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222 According to the Bushmen, water has always existed in the eight permanent waterholes of the Dobe area. Seven of these waterholes are situated in or near the dry bed of one molapo, the !angwadum. The eighth, 25 miles to the south, is in the bed of another molapo, the /ai/aidum. These molapos lie in the center of a belt of flatlands which varies in width from 5-10 miles. It was pointed out in Chapter IV that the molapos interrupt the basic system of parallel dunes that cover most of the northwestern Kalahari. But it is only on these dunes that the primary Bushman food, the mongongo nut, is found. The result is that each of the eight waterholes is three to seven miles distant from the nearest grove of mongongo nuts. Thus gatherers who are camped at a permanent water must make a minimum daily round trip of six to fourteen miles in order to gather mongongo nuts. As the nearest nuts become exhausted the round trip distance becomes greater and greater, until it reaches a distance that is too far to walk in a day. This distance varies from camp to camp but 12 miles (6 miles out and 6 miles returning) was close to the maximum that the

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221 The availability of water can be regarded as the most important determinant of Bushman subsistence activities. A season by season account of these activities will serve to illustrate how subsistence strategies take maximum advantage of water sources. The annual subsistence cycle is described under six headings:

1. First rains
2. Main rains
3. Autumn
4. Early winter
5. Late winter
6. Spring

1. <u>First rains</u>

The onset of the first rains finds the Bushmen clustered [361] around their permanent waterholes. It is this time of year [574] that camp membership is most stable because all areas are short of food and there are fewer incentives for visiting [132] other camps. Also the weather is hot with mean daily maxima of 100°F and walking is uncomfortable.

312 Food, in the vicinity of permanent water, is in short
221 supply. Fruits, berries, melons and leafy greens, which appear
824 only during the main rains, are nowhere available. The mongongo nuts are still abundant but are found only at distances of ten or more miles from the permanent waterholes. The diet

312 at the waterholes consists primarily of roots and bulbs of the
• 221 genera: Eulophia, Vigna, Walleria, and Coccinia, and the edible
824 sap of Acacia spp. and Terminalia sericea. It is this time of
year that the heart of the dwarf vegetable ivory palm is eaten,
[164] (Hyphaene). Those who eat its fibrous pulp experience stomach
cramps and diarrhea, but, as the Bushmen say, it make one's
"mouth work" and gives one a sensation of a full stomach.
221 Hunting is arduous business in the heat and men who go out in
224 the early morning find it necessary to spend the mid-day hours
resting in the shade. The principal animal killed is the
springhare.

132 The first rains are convectional thundershowers. Their
distribution is spotty. A storm may briefly inundate one area
and miss entirely another area only a mile away.

312 The Bushmen observe the storm clouds travelling across
222 the horizon and try to judge where the showers have drenched
[821] the ground. They then set out in family groups in the direc-
tion of the rains. If they find that water has collected in
the hollows of mongongo trees, they will stay in the nut groves
for several days and eat nuts until the water is exhausted.
They then fill their karosses with nuts and return to the per-
manent water. If, on reaching the nut groves, they find that
no water has collected they will be forced to fill their karosses
with nuts and return to camp the same day. In certain areas

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361 The distribution of camps during the summer follows two phases. In the early phase when water is standing in a dozen or more localities camps are found at most waters. This is the time of maximum freedom of movement because ponds fill up in the usually waterless belts and make it possible for people to visit relatives 35-70 miles away.

The distribution of camps in December 1963 is illustrated in Map 17, p.157.

The second phase of summer life begins as these smaller waters dry up in February and March. Then most of the Bushmen converge on the large summer waters such as !Gauŭa Pan (not to be confused with /Gauŭa Pan in the Nyae Nyae area).

!Gauŭa Pan in its peak season (Jan-March in 1964) was a pond 400 feet long and 125 feet across, located in a local [162] drainage area between two dunes. In addition to a resident [648] population of 40 Bushmen (aggmented by dozens of temporary visitors) the pan supported four Bantu cattle posts with [136] about 500 head of cattle. The pan was a watering place for kudu and wildebeeste and had resident flocks of red-billed teal, white-bellied stork and hammerkops. Within a 3 mile radius of the pan there were remains of at least ten abandoned Bushmen camps that had been occupied in previous years.

[162] Besides !Gauŭa there were four other big pans in the Dobe area, each of which supported large Bushmen camps (of

[TEXT CONTINUED ON PAGE 158]

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[162] 30 or more people) and Bantu cattle posts. These were located at Characharaha, Mahito, !gun/isa and /wihabe. Map 18 illustrates the distribution of population during the late summer (March 1964). p. 159.

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222 Life at the summer pans is, by Bushman standards, luxurious because all of the major and minor fruits, berries, melons and leafy greens become available. There is a succession of ripening of the major foods throughout the summer months. The first to ripen are the leafy greens (Dipcadi and Talinum), followed by the sour plums (Ximenia caffra and X. americana), then the melons (Citrullus lanatus and C. naudinianus), and the Grewia berries (Grewia flava comes first followed by six other species). By the time the plums have become scarce the melons are ready for eating. As the melons become worked out the Grewia berries ripen. Each of six species of Grewia comes into ripeness at a different time, so that every two weeks throughout the middle of summer another species of Grewia became ready for eating. Throughout the early part of the summer the mongongo nuts are available but these are the nuts from the previous year's fall. It is not until April that the current year's fall of nuts occurs. And then a new cycle of working out from the camp occurs. This illustrates again the selective gathering habits of the !Kung Bushmen.

824 is not eaten. Next is a casing of granular-textured fruit
262 which is eaten. The fruit encloses the nut itself. This consists of a thick outer shell which must be cracked open with the nut-cracking stones. Within the thick shell is a softer inner shell which encloses the nut kernel which is the staple of the Bushman diet. This inner kernel is "packaged" within four protective layers and this explains its remarkable storage properties.

824 In the late summer and autumn months the Bushmen eat
252 large quantities of both the fruit and the nut. First the women boil potfuls of whole fruit in order to separate the outer flesh from the hard shell. The flesh of the fruit produces a delicious fruit puree that tastes like stewed prunes. After the fruit is eaten, the nuts themselves are set aside for later cracking and eating.

184 The summer hunting situation appears to vary from camp
• 221 to camp. At the !Gausa camp very little hunting was done.
224 The resident men assisted the Bantu in cattle herding and they
[177] received calabashes of sour milk as payment. At Characharaha
648 the men hunted more, killing gemsbok, python and porcupine.
[464] At one summer camp, Mokoro, where there were no Bantu resident, two young men killed four large buck in the space of one month (two kudu and two gemsbok). This Mokoro camp was an
[177] unusually successful one. The availability of cows' milk and meat no doubt lessens the men's incentive for hunting

000 meat no doubt lessens the men's incentive for hunting.

• 221 3. Autumn - which fell (in 1964) during April is the period
312 when these large summer waters are drying up. One by one the
361 big pans turn into muddy pools and the Bushmen abandon them. Some of the people join the camps established at the remaining summer waters while others fall back to their permanent water-holes in the main molapos.

!Gauša was the last of the summer waters to go dry. It was finally abandoned by May 1, 1964. By this date all the Bushmen had returned to the permanent waters and this marks the beginning of the winter subsistence cycle.

As mentioned previously the present study was made during a drought. There are indications in the literature that summer waters do not always dry out as early as May 1. The Bushmen themselves spoke of summer water persisting in previous years into the period of frost which does not come until June or July. It is also probable that the presence of Bantu cattle contributed to the premature drying out of the summer waters. However, these hypotheses cannot be tested except by further field work.

4. Early Winter

221 The winter season is not coterminous with the period of
312 food scarcity. This scarce period does not begin until mid-
433 winter and continues until the first rains. The first half

221 of winter from May to mid-July is a period of relative abun-
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433 dance. This is due to the fact that the permanent waters
[361] have not been occupied during the summer months, and there is abundant food in their vicinity when the Bushmen return to
[824] them in May. Subsistence has a double base, including both the tail-end of the summer foods such as the Grewia berries, and the first series of winter roots and bulbs. Mongongo nuts are also locally available. The distribution of the Bushmen population during the winter of 1964 is shown in Map 19, p. 165.

221 The root foods are generally associated with the winter
824 subsistence. This is curious because as perennials the bulbs may be dug out at any time of the year. But the Bushmen do not concentrate on root foods during the summer months: they pass them over in favor of the foods of shorter duration, the fruits and melons. They state that they do not like the flavor of the root foods during the winter.

In May and June these root plants are exploited and the pressure on them increases through the winter as the nuts become locally exhausted. The major roots are Eulophia spp., Vigna dinteri, Walleria muricata, Coccinia spp., Coccinia rehmannii and Ceropegia spp. - nine species in all. These have edible bulbs or storage organs which range in size from one to three inches in diameter.

[TEXT CONTINUED ON PAGE 166]

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224 Winter is the snareline season. Each hunter who is
wintering in his home territory starts to build his snare-
lines in May and continues to refine and improve the lines
224 until the end of August when they are abandoned. The snare-
line is built up as follows: the hunters of a camp agree
beforehand where each man will set up his lines. A man surveys
his snaring area for fresh tracks of steenbok which is the
major animal snared. He gradually lays down an unobtrusive
line of brush 600 to 900 feet long. The line zigzags from
bush to bush until by degrees he closes off a tract of ground
with a brush barrier. The object of this operation is to
habituate the animals to cross his line at a limited number
of gaps. Each day he inspects his line for fresh tracks.
If the animals are breaching his line regularly at one gap,
he then sets a rope snare in the gap.

The snare consists of a 3 foot length of rope, at one
end of which is a noose. This noose is spread apart on the
ground by a series of pegs. The center of the noose has a
trigger. When the forefoot of an antelope falls within the
noose the trigger is released. The other end of the noose is
tied to a trimmed sapling. The sapling is bent in a taut arc.
The animal crossing the gap steps into the noose and releases
the trigger. When the trigger is released the sapling snaps
back sharply and the noose tightens around the animal's foot.

TABLE 7

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The kills made by the hunters of the Dobe camp during a 28-day period (6 July to 2 August 1964).

Date	Hunter	Species	Technique	estimated weight of meat
July				
7.	ǂoma	wart hog	with dogs	80 lbs.
7.	ǂoma//gwe	steenbok	snare	12
9.	/ase	steenbok	snare	12
17.	ǂoma	wart hog	with dogs	80
20.	ǂoma	wart hog	with dogs	80
20.	ǂoma//gwe	honey badger	snare	10
20.	ǂoma//gwe	python	collected	20
21.	/ase	steenbok	snare	12
23.	nǂeysin!a	steenbok	snare	12
23.	ǂoma//gwe	hare	snare	3
24.	ǂoma	bat-eared fox	with dogs	4
27.	/ase	hare	snare	3
27.	ǂgau	korhaan	snare	2
27.	nǂeysin!a	korhaan	snare	2
28.	ǂoma	wart hog	with dogs	80
29.	ǂoma//gwe	kori bustard	snare	10
30.	nǂeysin!a	steenbok	snare	12
31.	/ase	porcupine	cornered in burrow	20
				454 lbs.[1]

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[1] In addition to the meat from these 18 kills, the Dobe Bushmen received gifts of meat from other camps. The weight of meat from these outside sources is estimated at 36 lbs. Therefore, the total meat eaten at Dobe was around 490 lbs.

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146 totalling 36 lbs. This meat (490 lbs.) went to feed a camp of 42 people (exclusive of visitors).

A rough calculation of the weight of meat per person per day through this 28-day period gives a figure of 6-2/3 oz. of meat. The daily intake of vegetable foods per person during the same period can be estimated at 24 oz. (of mongongo nuts and various roots). Therefore a reasonable estimate of the ratio of meat to vegetables in the diet of this camp is 25%-75%.

This ratio is based on observations at one camp during [114] one season only. It can be said, however, that George Silberbauer, Laurence and Lorna Marshall, and the author are in general agreement that meat comprises between 20% and 40% by weight of the Bushman diet (Silberbauer, 1965:28; Marshalls, personal communication).

5. Late Winter

• 221 There is a well-defined break point in the winter subsistence cycle between the early period (May, June and July) of relative abundance and the late winter and spring period
221 of increasing food scarcity (August-September). Through the
222 early winter the Bushmen concentrate on the mongongo nut groves
462 that are within a day's walk of permanent water. Groups of women go out once every three or four days, fill their karosses with nuts and return to the camp in the evening. The men

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during this period concentrate on tending their snarelines.
[462] Gradually the distance to the nuts increases as a wider and
[224] wider radius of nuts becomes eaten out. For instance, by the end of July there were no nuts within seven miles of the Dobe waterhole, and a day's collecting became a major undertaking. In order to reach the nuts, the women had to set out early in the morning and walk for 2-1/2 hours. In the nut forest they had to work for two hours to fill their karosses
[482] with nuts. On the return journey each woman was heavily loaded with c. 30 lbs. of whole nuts and the distance back to camp took 3-1/2 hours to cover. Thus on a late July collecting trip, the women would have to walk at least 14 miles to and from the nuts, plus another two miles in the nut forests, stooping and collecting. This adds up to eight hours of hard work in one day.

At this point, the effort required to gather mongongo nuts begins to outweigh the satisfaction derived from eating nuts and one observed a sharp decline in nut collecting in favor of the less desirable foods of classes II, III and IV. These latter foods had the advantage of being locally abundant in the vicinity of the permanent waterholes.

This transition from nuts to other foods occurred at Dobe
[184] at the end of July (in 1964). At !gose, where the nut forests are much denser, the gatherers continued their daily trips

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222 w[illegible] into September. On the other hand, at /ai/ai, where 109
184 Bushmen were living, the local mongongo nuts were exhausted at the beginning of July.

Since each territory was known for a different selection of winter foods, the transition took a different form at each waterhole. At Dobe, the mongongo nuts were replaced as the staple of the diet by Baobab fruits (Adansonia) and vegetable ivory palm hearts (Hyphaene). At Bate the people shifted from mongongo nuts to Sclerocarya caffra nuts. At !angwa, the people concentrated on collecting Acacia spp. gums.

221 In general the diet of the Bushmen becomes much more
824 eclectic during the latter half of the winter. It was during
146 this season that the Bushmen took advantage of a wide selection of edible species. Instead of eating mongongo nuts with a few other species as "side dishes", the people had to diversify their diet in order to live well. During August and September no less than 25 species of roots, bulbs and edible gums formed the basis of the diet.

222 There was an alternative strategy to eating less desirable
312 foods. If a family was prepared to make the effort required to reach the nutting groves, they would fill their water containers (ostrich egg shells and the stomachs of antelope) and walk to the nuts. They would collect and eat there until

312 shells; this makes for a very bulky and unwieldy parcel. The
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222 stomach sacs, by contrast to the egg shells, have the distinct advantage of being weightless and occupying no space on the return trip, since when they are empty they dry and shrivel up.

221 The reader can now appreciate the complex logistics of
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312 Bushman subsistence activities during the late winter dry season. In view of the difficulty of collecting mongongo nuts during this season, it is not surprising that the people turn to an eclectic diet of roots, bulbs, and gums that are still available in the vicinity of permanent water.

222 Several variations in tactics were observed among the
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855 Dobe area Bushmen. One such variation was to leave the older
312 children behind in the care of relatives while the parents
482 made the long trips to the nut forests. By leaving behind two children at the main camp, the parents could effect savings of 30% in the weight of water that had to be carried out on a four day trip.

222 Another variation observed was the two-day-one-night
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312 overnight hike. Such a trip lasted only 36 hours and required
[482] only three ostrich egg shells of water per adult. By using this tactic, groups of ten or more people could make a rapid lightly loaded trip to the nut forests and return the following day heavily loaded with nuts. This was a difficult operation

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484 because it entailed two consecutive days of hardhiking on short water rations. The object of such a trip was to get to the nuts and back again as quickly as possible, before the physiological deficit of water was allowed to reduce efficiency.

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262 The general object of the winter nutting trips was to remain at the nut forests just long enough to eat a really substantial quantity of nuts (about 400 nuts per adult). This marathon meal starts the moment that the Bushmen arrive at the nut camps and continues throughout their stay. It is interrupted for short periods when the Bushmen go out to collect nuts in the vicinity of their temporary camp. There is a Bushman saying that aptly applies to this situation: "It is better to carry food home in your stomach than on your back."

[539]

[224] Hunting rarely occurs at these overnight camps. The efforts of men and women alike are directed to eating as many nuts as possible in a short time.

[312] The most important variation in the late winter and spring subsistence tactics centers on the use of Fockea monroi as a source of water. This will be discussed below.

132 6. Early Spring

August is the last month of winter. The last of the freezing nights occurs at the first of the month and these are followed by warmer nights in the 40's and 50's and daily

132 highs in the 90's. The warmer weather heralds the onset of
312 spring which is the most difficult season of the year. Most
137 of the waterholes have no mongongo nuts within a ten mile
222 radius. The alternative foods, roots and bulbs, are being collected daily by some of the people, while others are making the long overnight journeys to the nut forests.

221 Since territories vary in the abundance of early spring
574 foods there was a noticeable tendency for families to visit
628 other camps. For instance in September, Bate still had a good supply of Sclerocarya caffra nuts; and several families from Dobe, Mahopa, and !angwa converged upon Bate to eat these nuts. Similarly !ubi had a supply of Baobab fruits (Adansonia digititata) and other families made extended visits to relatives there. The maintenance of close ties between camps made possible a more equitable distribution of food-stuffs, so that, if there was scarcity at one camp, and food at another, the members of the first camp would not go hungry. This is one of the highly adaptive features of the fluidity of !Kung group structure.

[563] Some families fall back on the Herero villages at this
[431] time of year to beg for milk. This occurs especially among those people who have a sister or cousin married to a Bantu man. Both the Bushman and Herero codes of good manners demand that visiting in-laws be fed (L. Marshall 1961).

221 433 Unfortunately spring is the most difficult season for the Herero as well as for the Bushmen. The good grazing for livestock is miles distant from the waterholes. Consequently the cattle are in poor condition and their yield of milk is low.

251 It would be useful for the Bushmen to amass a surplus of food in anticipation of this scarce season. However, none of the 15 independent camps observed ever kept more than a few days supply of vegetable foods on hand. Surplus accumulation was not a feature of Bushmen food strategy except for one instructive case.

There was a noticeable attempt to create a small surplus 251 285 in the form of dried meat and hides. Each family maintained a storage basket in the crotch of a young tree. By weaving a framework of branches and palm fronds and lining this with grass, they built up a rough basket for storing weapons, water containers and small amounts of food. The storage basket was built five feet above the ground which kept its contents safe from the reach of dogs and children. If a day's hunting had been unsuccessful, the members of a camp could invariably produce an emergency ration of dried meat or, more often, dried hide for the evening meal. People saved scraps of dried hide of kudu, gemsbok and wildebeests from kills made weeks or 251 252 262 months previously. These scraps were softened by boiling or

251 were roasted in the coals of the fire and then pounded to
252 the consistency of coarse meal in the wooden mortar. This
262 roasted hide had the taste and texture of crisp crackling and was delicious when pounded and mixed with the flesh of roots of the genera Coccinia, Walleria and Eulophia. These stores of dried hide and meat did not serve as a staple surplus so much as an emergency delicacy to brighten the diet when a day's hunting had been unsuccessful.

• 221 The major food strategy during the hot dry spring was
222 the 7-14 day trip to the waterless country where mongongo nuts
312 were still plentiful. At these camps the only source of
361 water was the juice from the roots of Fockea monroi. Fockea
824 has an uneven distribution in the Dobe area. The Bushmen must camp in a nut forest that is in close proximity to patches of Fockea. The maximum period that a group was observed to live on Fockea roots was two weeks. The limitation is set by the density of Fockea plants in an area, and the amount of fluid that each plant holds. Life at the Fockea patches is difficult because people have to work hard to obtain water as well as food. Each Fockea root storage organ contains 8-16 ounces of recoverable moisture. Thus a daily ration of 72 ounces of water can be obtained by digging out 5-10 Fockea roots.

312 But the dilemma of living on Fockea lies in the fact that
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484 123 312 until 8:00 p.m. Before making camp we ate wild oranges along the way (Strychnos [illegible]inosa) but these did not contain much moisture. We camped at a point halfway between !wi/wama and Dobe and there shared out the last of the family's drinking water, which amounted to one quart for four adults and three children, that is c. 4-1/2 oz. for each of us.

484 123 November 8 - The camp awoke at 4:50 a.m. By 5:20 we had packed and were under way, arriving home without incident at 7:30 a.m.

484 312 361 November 8-16 - This ended the author's participation in the Fockea trip. Six members of the original group remained at !wi/wama eating nuts and drinking the juice of Fockea. On the eleventh of November there was a heavy fall of rain at !wi/wama which created a temporary pool of water near their camp. This enabled them to extend their stay beyond the original plan of five days.

484 361 844 The same week that the rain fell, the pregnant woman of the camp gave birth to a baby boy. The group remained at the nut camp until the mother was strong enough to walk. Then they broke camp and returned to Dobe on November 16. Both mother and child appeared to be in fine condition.

132 221 The rain of November 11 was the first substantial fall of the 1964-65 rainy season and initiated the subsistence activities associated with the late spring (see above). Thus

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221 this account of the seasonal round has come full circle to the starting point.

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433 In summary, there are, in effect, only three basic sets of subsistence conditions for the Bushmen:

1. Water everywhere - Food everywhere
2. Water limited - Food abundant
3. Water limited - Food scarce.

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[602] When the first set of conditions prevail during the rains of November through March, Bushman life is sweet. The camps can live near the most concentrated food sources within their territory, or share in the food supply of neighboring camps, or easily undertake the long trips to visit relatives at distant waterholes.

When the second set of conditions prevail, from April through July, freedom of movement is more restricted but food is still abundant enough to make life comfortable.

When the third set of conditions prevail, from August through October, the Bushmen must resort to increasingly arduous tactics in order to maintain a good diet, or, alternatively they must content themselves with foods of less desirability in terms of abundance, ease of collecting and nutritive value.

It is during the three lean months of the year that the Bushmen life approaches the precarious conditions that have

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come to be associated with the hunting and gathering way of life. However one should not lose sight of the fact that for nine or more months of each year the Bushmen can easily fulfill their food requirements without resorting to the more difficult (and, to our eyes, more dramatic) subsistence tactics.

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Abundance of Resources -- The habitat of the Dobe area !Kung Bushmen is rich in naturally-occurring foods. The three distinct plant associations - of the Dune, the Flats, and the Molapo - each support a distinctive constellation of food plants. By far the most important of these is the Dune association and its main constituent, the mongongo tree. From the vast groves of this tree, many thousands of nuts are harvested each year. The mongongo nut, because of its abundance and reliability, resembles a cultivated staple crop such as maize or rice. In terms of nutritional value - proteins and sugars - it even exceeds the cereal crops. Furthermore, it is drought-resistant so that the mongongo nut will still be abundant in dry years when cultivated crops fail. The excellent storage properties of the nut allow it to be harvested in all months of the year. This factor is especially important during the dry winter months when the short-term rainy season foods are not available. It is not surprising, therefore, that when the Bushmen are asked to explain why they have not taken to cultivation, they reply: "Why should we plant when there are so many mongongo nuts in the world?"

[221]

Variety of Resources -- The mongongo nut is only one, albeit the most important, of the 85 species of edible plants available to the Bushmen. The existence of this variety of foodstuffs

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824 allows for a wide range of alternatives in subsistence
433 strategy. During the summer months the Bushmen have no prob-
824 lem other than to choose among the tastiest and most easily
a 221 collected foods; other species which are quite edible but less attractive are simply bypassed, so that gathering never exhausts all the available foods of an area.

During the dry season, when the fruits and melons have gone, the gatherers still have multiple options open to them. They may plan a hike to the molapos to collect the edible Acacia gums, or they may go to the flats to dig out roots and bulbs. Even at the end of the dry season, when the stronger members of a group are making the long hikes to the mongongo forests, the older, less mobile members can derive an adequate subsistence from an eclectic diet of minor foods which are closer to home.

433 Plants versus Game -- The security of Bushman subsistence
222 derives in part from the fact that meat is of secondary import-
224 ance to vegetables in the diet. The !Kung males are persistent, but not particularly successful hunters. Although hunting accounts for over half of the subsistence effort of a camp, meat comprises only 20-40 per cent of the diet. The basis of the Bushman diet is plant food, and meat has come to be regarded as a special treat. When meat is available, it is welcomed as a break from the routine of vegetable foods, but it is never

121 It is suggested that the delayed assumption of social
433 maturity by the young people and the support of the non-pro-
883 ductive elderly people are institutions which are possible
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182 only in a society with a relatively secure subsistence base.

433 Water, Food, and Nomadism -- The special subsistence problems
312 faced by the Dobe area Bushmen concern the scarcity of water.
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361 All of the eight natural permanent waterholes are situated in or near the beds of the main molapos. During the summer months, when temporary pools develop at a distance from permanent water, the Bushmen can move out to live at them. Except for a few weeks each year, the Bushmen spend their entire lives camped within an hour's walk of standing water. Only at the end of the dry season do some of the younger people undertake the long trips to the dry forests where they live by digging out the water-bearing roots. Since it is the custom of the Bushmen to return each evening to their main camps, it follows that areas within a single day's walk of standing water will be intensively utilized. Areas that lie beyond this radius will be rarely utilized even though they may be rich in food. The fact that the Bushmen can live well for most of the year within a six-mile radius of permanent water indicates that they do not lead a nomadic way of life. Each summer they move up-country to the seasonal waters and each winter they fall back on their permanent waterholes. In contrast to some Australian aboriginal groups, whose annual round consists of walking a circuit of many waterholes, the Dobe area Bushmen have a

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361 transhumant annual round, in which they alternate between their rainy season range and their dry season range.

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628 The Dobe area !Kung do not undertake long marches of 30-70 miles for the purpose of getting food. This task can be readily fulfilled within a day's walk of their territorial water sources. When such long marches occur, they are invariably for the purposes of visiting, trading, and marital exchanges with relatives at distant camps. As such, these trips should not be confused with the normal routines of subsistence.

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162 Range Size and Population Density -- By plotting the movements of the various camps in their annual subsistence cycle, the observer can derive a rough estimate of the total land area that is required to support the population of 430 Bushmen. It would be much more difficult to estimate the area necessary to support a single camp, because of the considerable overlap of territories and the frequent visiting between camps. It will be more useful to treat the entire population as a unit. It is estimated that the 800 square miles that lie within a six-mile radius of major water sources are sufficient to support the population for most of the year. Beyond this radius lies a hinterland which is rarely penetrated; perhaps a further 200 square miles of this hinterland is utilized in the course of a single year. Thus the total annual range of the Dobe area Bushmen may be estimated at 1,000 square miles. This calculation sets the effective population

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166 territory occupied by the band its members roam about freely in
361 search of food, and family groups often separate from the main body
621 to wander about on their own account for a while. Of the Naron, for example, Miss Bleek writes that she has "sometimes seen three or four huts together, sometimes twenty, with from sixty to eighty inhabitants. Every few weeks a new hut appears, or a vacant space shows where one has gone"; and she adds that as the village is such a fluctuating quantity it is difficult to estimate the numbers of a band or a tribe.[1] Indeed it seems to be a feature in the life of some of the Northern tribes that during the dry season the families in the band scatter about separately, to come together again only in the rainy [221] season, when there is an ample supply of water and "veldkos". Thus among the Auen only one or two families may be found living together in the dry season, while towards the end of and shortly after the rainy season, when the edible plants of the veld are abundant, up to thirty families may join together.[2] It is thus by no means unusual to find several small encampments of members of the same band scattered about over its hunting territory, a fact which may easily mislead casual observers with regard to its numbers.

On the other hand, it also appears that at times members of several
361 different bands may come together for a while. Passarge mentions
619 that in 1897, during an outbreak of rinderpest when cattle were
621 dying in great numbers in the Ghansiveld, Bushmen were drawn together from all parts of the vicinity by the abundance of animal food thus provided. At one spot he saw between one and two hundred of them, at another about one hundred, and these included both Auen and Naron.[3] In the Kwebe Hills, again, his camp was passed by about one hundred men returning to the Hainaveld from the sandveld. Together with their women and children this group must therefore have numbered from three to four hundred.[4] It is almost certain that these people too must have belonged to different bands and had only come together temporarily, but this is not definitely stated by Passarge. Kaufmann, again, mentions a camp of Auen at Sidonitsaub which in April, 1908, contained about four hundred men, or with women and children about one thousand persons [622] all told. That these belonged to a number of different bands was

[1] *The Naron*, 4.

[2] Kaufmann, "Die Auin," 136, 138; cf. Passarge, op. cit., 42; Vialls, "Kalahari Masarwas," 30.

[3] Op. cit., 7, 8.

[4] Op. cit., 10.

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611 belong to the band of which their father is a member. But, as already
621 mentioned, there are certain cases among the Naron where both married sons and married daughters with their respective spouses and children are found living in the same band. It would throw much light on the structure of the band if we could know whether all these children are regarded as members of the band in which their parents are living, or whether some distinction is made between the children of the married sons on the one hand and those of the married daughters on the other. Without further research in the field, however, no definite statement can be made on this crucial point. There is also nothing to indicate whether people who are related or claim to be related in the male line, or again those who are related or claim to be related in the female line, are specially bound together by ties of a ceremonial, legal or economic nature. Whether further research, therefore, will show the bands of the North-Western Bushmen to be clans is problematical. The trend of the available data gives no clear indication either way.

Encampments and Dwellings

361 Moving about constantly as they do in the search for food, the
221 Bushmen build no permanent homes. More or less fixed villages are
[184] found only among the tribes living in the Okavango-Zambesi region, but even here there are distinct quarters for the winter (dry season) and for the summer (rainy season). During the dry season the Tannekwe live in the marsh lands of the Okavango basin, where they have small villages surrounded with palisades, after the style of their Bantu neighbours. In the rainy season, however, these become uninhabitable. The people then move out to villages on the edge of the surrounding plains, where they also have their hunting grounds. The Hukwe on the plains north-east of Lake Ngami live in similar villages during the rainy season, from which they scatter about in family groups in the dry season to hunt and collect.[1]

361 Everywhere else the encampments of the Bushmen are temporary.
342 The tribes formerly living in the mountainous regions of the south and east often made their homes in caves and under rock-shelters, in which relics of their occupation may still be found. Even to-day the Namib Bushmen, during the latter part of the dry season, also live chiefly in caves or under overhanging rock-shelters on the high

[1] Seiner, "Bereisung der Omaheke," 296, 297.

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CHAPTER V

SOCIAL HABITS AND CUSTOMS

DAILY LIFE AND FOOD

Daily and Seasonal Routine

THE life of the Bushmen is one long struggle for food. For their subsistence they rely entirely on the natural products of their environment: their animal food is obtained mainly by hunting, and occasionally fishing, while their vegetable food consists of edible plants, roots, and fruits growing wild in the veld. Save where they have been very considerably influenced by other peoples, they neither practise agriculture nor keep domestic animals which can supply them with food in the way of meat or milk.

The very mode of their subsistence makes them all wanderers. As soon as the edible plants in the vicinity of one waterhole grow scarce, the people move on to another, following the movements of the game and the growth of the plants. In this way a few months are spent at one waterhole, then some months at another, perhaps at even a third or fourth, and it is often a year or more before the first is revisited.

In particular their movements are regulated according to the season and the distribution of the rainfall upon which they are mainly dependent for their food supply. In the Namib Desert and in the Central and Northern Kalahari each band has different dry and rainy season quarters, to which it resorts as the growth of veldkos or the movements of the game necessitate. The Namib Bushmen roam about the sand dunes of their region during the rainy season and well into the dry season, but as soon as the water and the indispensable */naras* fruits found there are exhausted, they draw back into the mountains, where each band has its permanent waterholes.[1] Similarly the Bushmen in the Central Kalahari roam in the sandy plains during the rainy season, and still manage to live there for part of the dry season, even after standing water has disappeared, on succulent melons and roots; but when these also begin to fail the people are

[1] Trenk, "Buschleute der Namib," 166, 168.

2: Schapera E-4, 5 (no date)1930
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221 312 423 compelled to turn back to permanent waterholes. Thus in the rainy season the Aikwe, Tsaukwe, /Amkwe, /Dukwe, and Tserekwe all hunt in the wide sandveld pierced by the bed of the Letyahau, keeping to some extent to their respective hunting territories, but apparently also hunting together peacefully in the most central parts of the region. In the dry season, however, they turn back to the limestone pans of the Ghansiveld and Mahuraveld and to the river-courses of the Tauche-Botletle system, where permanent water is to be found.[1] The same alternation of residence with the seasons occurs, as we have seen, among the Tannekwe and the Hukwe, and may also be noted among the Kung and the Auen in the Omaheke and Kaukauveld.[2]

[621] It is not only in alternation of residence that the change of season makes itself felt. In some cases it also affects the very cohesion of the band itself; for, as already mentioned, both among the Auen and among some of the Central Kalahari tribes the members of the band concentrate together during the rainy season when there is a more abundant supply of food, but as the dry season comes on the families scatter and wander off in different directions.

462 512 From their huts the people go out every day in search of food. The women rise early, light the fire, and prepare the food for the morning meal, which usually consists of veldkos left over from the previous evening. After having eaten, the men may go out hunting or visiting or engage in some other occupation, such as preparing skins, weapons, and utensils. The women accompany one another in search of veldkos and go out soon after the men have left. "One may see a group of women and little children start off in one direction, single file of course, then some men in another, then four or five boys together, then girls, small and big, then some more men, and so on." When food is obtainable at no great distance, the women are usually back in camp towards midday. When they have far to go they may not reach home till late in the afternoon. Wood is collected on their way back. Immediately after their return they start the fires and proceed to prepare the food, the younger married women and young girls in the meantime fetching water from the neighbouring waterhole.

[264] Food is ready by the time the men arrive in the late afternoon, and the evening meal, the principal meal of the day, is then eaten without delay. Meals are taken in common by the members of the family,

512 [574] each family eating at its own hut. Afterwards visits are usually

[1] Passarge, *Die Buschmänner der Kalahari*, 31–2.
[2] Seiner, "Bereisung der Omaheke," 303.

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372 622 by him by means of the *kei-doros*. The new */ou-/ais* now serves to supply the other members of the group. At times it may happen that all the members of the community may not be living in the *//gaus* 361 (camp), but in some outside werft. This is usually the case only in ● 221 times of drought when the game has moved far afield and great 672 difficulty is being experienced in obtaining veldkos. Further, people 622 driven out by another group and seeking protection are sometimes allowed to live some distance away from the *//gaus*. Such communities are not allowed to make their own fire or to obtain it from any other source, but the */ou-/ais* of the *gei-khoib* in whose territory they are living.

622 372 "Persistent ill-health among the members of the community or difficulty in obtaining veldkos or want of luck in the chase may cause the *gei-khoib*, either of his own accord or after consultation with his people, to proclaim that it is necessary to make a new fire. In such an event all fires, including the */ou-/ais*, are extinguished by being covered over with ashes. The *gei-khoib* at the same time notifies all outside camps of his decision and the latter likewise extinguish their fires. He then kindles a new */ou-/ais* in front of his hut with the *kei-doros* and applies *!norab* and *dabas* in the manner described above. The new fire is not made on the same spot as the old fire, but a few feet away from the place on which it has been."

114 372 622 "The custom of kindling and maintaining a perpetual fire," Fourie goes on to say, "is met with among all the organized primitive groups" of Bushmen in South-West Africa. The only previous information hinting at observances of this kind is found in a curt statement by Kaufmann that among the Auen the "captain" of a village sees to it that the fire does not go out. But he adds that there is no "sacred" fire, and attributes the guarding of the fire against extinction to the practical inconveniences of the method employed in making it.[1] Quite recently, however, Lebzelter has reported the occurrence of similar observances among the Kung, although his remarks on the subject are very scanty. He states merely that the Kung, like the Bergdama, have the sacred fire round which only the men may sit. "When the camp is moved," he concludes, "the head of the group takes with him a brand from this fire"[2]—presumably to use it for

[1] Kaufmann, op. cit., 139; "Der 'Kapitän' (Aichab) der Werft achtet darauf, dass das Feuer nicht ausgeht. Ein 'heiliges' Feuer ist nicht vorhanden. Die Bewahrung des Feuers vor dem Verlöschen geschieht lediglich aus praktischen Gründe, da das Feuerquirlen immerhin ziemlich anstrengend ist."

[2] "Bei den !Kuh-Buschleuten," 14: "Wie die Honigkaffern haben auch die !Kuh das Sochafeuer. Es ist dies das heilige Feuer, bei dem nur die Männer sein dürfen. Wenn die Werft übersiedelt, dann nimmt das Werftoberhaupt einen Feuerbrand mit Sochafeuer mit."

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Chapter VI

ECONOMIC AND POLITICAL LIFE

Land Tenure

Each hunting band among the Bushmen, as we have already noted, claims rights of ownership over a certain stretch of land, and vigorously resents trespass upon it by members of other bands. Within the band land is owned in common. The hunting territory belongs to the whole band, and all the members of the band have an equal right to hunt and collect over any part of it and to use the water in it. Often the members of the band are scattered apart, so that the same territory is exploited by the inhabitants of several different encampments. These encampments, as we have seen, are not made up of any fixed number of families, but fluctuate a good deal in size. Whatever their momentary disposition, however, their inhabitants always roam within a definitely limited area, and it is always the members of the same band who establish these different encampments within its bounds.

As the Bushmen practise neither agriculture nor pastoralism, there is no question of cultivation or grazing rights. There is said, however, to exist a certain private ownership of land among the Auen, in the sense that when a man burns a patch of veld in order to promote the growth of veldkos on it, he alone has a claim to its products. Others, even people living at the same encampment, may not gather veldkos on this patch without his permission.[1] Somewhat analogous to this are the private rights recognized by all Bushmen over objects found in the veld. A man who finds an ostrich nest with one or two eggs, for example, sticks an arrow in the ground close by as a sign of ownership, and waits until the tale of eggs is complete before carrying them off. Should another man take the marked eggs, the first finder follows the spoor to the thief's hut, and demands them back. If they are restored, there is no fighting, but the thief does not escape reproaches for wrongdoing, especially from the neighbours of the finder; while in case of refusal bloodshed almost inevitably follows. In the same

[1] Kaufmann, "Die Auin," 155.

2: Schapera E-4, 5 (no date) 1930
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Another method of trapping employed by the Bushmen of the Namib and of the North-West Cape was to poison the water in springs and so kill the game that came to drink there. The water was conducted a few yards from the spring into a specially-prepared pit, into which were thrown branches of the poisonous *Euphorbia*. The branches were kept down with stones, and the juice exuding from them rested like a scum on the water. The spring itself was fenced off or covered over, thus forcing the animals to drink from the pit. Zebras and other members of the equine species were especially susceptible to water poisoned in this way. Alexander states that near the River Keisu in South-West Africa he found the remains of no less than twenty horses lying close to such a poisoned waterhole.[1]

Traps proper as employed by the modern Bushmen are of two kinds. In one a stone or block of wood is placed in such a position that when the animal touches the exposed bait, the suspended weight falls down upon it. The other kind consists in snares (Plate XI), which are widespread among the Northern Bushmen, but do not appear ever to have been used by the Southern tribes. They are of various types, but the general principle is that a supple twig or sapling is bent down by means of a cord attached to a bait and ending in a noose. If the animal stirs the bait, the cord is released, the sapling springs back into the air, and the noose catches the throat or leg of the animal, which is carried up with it. In this way are caught not only birds and small quadrupeds, such as hares, wild cats, and jackals, but even small buck such as the duiker and steenbok, as well as leopards and ostriches. Snaring is resorted to only during the dry season; in the rainy season it must cease owing to the action of the damp on the cord. This is made from the bark fibre of *Sansevieria zeylanica*, which is shredded by means of a pointed stick, then rolled on the thigh into strands, which are twisted together. Thicker and thinner cords are made according to the game to be trapped.[2]

Fishing

This is also practised wherever possible by all the Bushmen; indeed, among the tribes living in the Okavango swamps it is even

[1] Alexander, *Expedition of Discovery into the Interior of Africa*, ii, 223; Paterson, *Four Journeys into the Country of the Hottentots*, 169; Trenk, "Buschleute der Namib," 167. Moffat describes how on one occasion he nearly died as a result of drinking water poisoned in this way (*Missionary Labours in S. Africa*, 155–6).

[2] Schultze, op. cit., 667; Passarge, *Die Buschmänner*, 77; Gentz, "Beiträge zur Kenntnis der südwestafrikanischen Völkerschaften," 199 sq.; D. F. Bleek, *Naron*, 15.

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222 622 [184] A somewhat different ceremony, also connected with the collection of veldkos, is held by the Kung.[1] Once a year, when the edible bulbs of the veld are beginning to ripen at the beginning of the rainy season, the head of the band on a morning fixed by him calls together all the inhabitants of the camp before sunrise. He then takes up some faggots mixed with dry grass and straw, and all squat down in a circle around him. On the ground near the firewood lies a piece of wood, in which is bored a hole. In this hole is placed a freshly-broken twig of the wild fig-tree. A lit pipe is handed to the headman. He takes it in both hands, held palm to palm, and twists it about over the wood until its burning content falls on to the grass, which becomes kindled into flames. During this performance he repeats the following prayer to [782] [539] Huwe, a supernatural being: "Father, I come to you, I pray to you, please give me food and all things, that I may live." When the fire has burned out the members of the band scatter to seek the new bulbs, which up till now they might not touch.

222 184 These two ceremonies are the only ones on record indicating the presence of a special cult among the Bushmen in connection with the gathering of veldkos; but, as will be shown later, in all the Bushman tribes there are numerous other ritual observances and beliefs which may be regarded as centring in the sources of food supply, although they are somewhat different in nature from the two just described.

312 [462] [857] [415] [237] Water must also be fetched every day from the waterhole. This is generally the task of the children, but if the distance is far the women go, and occasionally even the men. The water is stored in ostrich egg-shells in one end of which is bored a hole which can be plugged with grass. These are carried about in a net of woven fibre or in skin bags. The stomach of a buck is also sometimes used as a water-bottle.

312 182 [221] [621] The supply of water is one of the most acute problems facing the Bushmen in the Kalahari and Namib Deserts. It affects their mode of life to a very considerable extent, for it not only regulates the migrations of the people, but also their cohesion, since, as we have seen, in many cases the different families constituting a band live together only in the rainy season, to scatter apart as soon as the dry season returns. Moreover, upon the supply of water depends the growth both of the veldkos and also of the grass upon which the game lives, so that the whole subsistence of the Bushmen is intimately bound [823] up with it. This intimate dependence, as we shall subsequently see,

[1] Vedder, "Grammatik der !Kũ-Buschmannsprache," 6–7.

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finds expression in the numerous observances and beliefs developed in relation to the sources of water, and especially to the rain. Here, however, we may note how the Bushmen cope in practice with this ever-present problem.

Caches of ostrich egg-shells containing water are often buried in the ground or hidden in a tree for future use, and to steal them is one of the greatest offences in Bushmen life. When even these have given out, a substitute is found in various succulent plants, especially the */naras* and the *tsama*, which contain enough moisture to relieve thirst and which are still available for the first part of the dry season. In some parts of the Kalahari water may still be found below the surface at this time, and to obtain it the people make use of an ingenious filter. A hole is dug in the sand where the green colour of the grass indicates the presence of the subterranean water, and with a reed tube to the lower end of which is attached a bundle of grass they painfully suck out drop by drop the water that has collected below, then carefully transfer it to the egg-shell bottles. But when even this resource fails them, they are compelled to make hurried marches back to the permanent waterholes, to which they cling until the coming of the rainy season again enables them to move out into the sand veld and resume their normal hunting life.[1]

Industries and Trade

Industries

Besides their food, which they must find from day to day, the Bushmen have need of little but their weapons and utensils. Their household possessions are few, for they seldom own more than they can conveniently carry about with them, and all their industries are essentially domestic.[2]

From wood they make their huts, the staves of their bows and spears, quivers for their arrows, digging-, throwing-, and firesticks, the long barbed stick used for catching spring hares and other burrowing animals, the poison sticks on which the arrow poison is gathered in lumps after it has been prepared, the spits (sometimes

[1] Livingstone, *Missionary Travels*, 51; Chapman, *Travels in S. Africa*, ii, 297; Passarge, *Buschmänner*, 51, 70–1, and fig.; Schultze, *Aus Namaland und Kalahari*, 671–3; Seiner, "Bereisung der Omaheke," 393–4.

[2] The most comprehensive account of Bushman industries is to be found in Gretschel, "Die Buschmannsammlung Hannemann," *Jb. städt. Mus. Vkde. Leipzig*, v (1911–12), 89–113, pl. xxiii–xxix, which relates chiefly to the Auen; cf. also van Rippen, "Notes on Some Bushman Implements"; Stow, *Native Races of S. Africa*, 62–80; Passarge, op. cit., 81–94; Gentz, "Beiträge zur Kenntnis der südwestafrikanischen Völkerschaften," 297–301; Kaufmann-op. cit., 152–3; Schultze, op. cit., 658 sqq.; Werner, "Ueber die Heikum- und Kungbuschi leüte," 217; D. F. Bleek, *Naron*, 8–18 *passim*; Fourie, "Bushmen of S.W.A.," 103.

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Bushmen from all parts of the Ghanzi veld, even from different tribes, owing to the abundance of animal food thus provided. And again Passarge states that in the Central Kalahari there are also common hunting grounds in which during the rainy season members not only of different bands but also of several different tribes may be found hunting together peacefully, although at other times of the year each band carefully avoids going beyond its own area.

All this suggests that there must be some sort of machinery, however imperfect or ill-organized, to regulate social contacts between different bands. Unfortunately the information bearing upon this most important point is so inadequate that it is extremely difficult to determine to what extent the bands are socially interrelated. There are indeed one or two hints of common meetings at special times for ceremonial purposes. Thus Kaufmann, in describing the boys' puberty ceremonies among the Auen, states that the initiates are drawn together from several neighbouring villages,[1] while Lebzelter, in his preliminary account of the Kung, makes the tantalizingly brief statement that in the months of March and April different bands come together for great feasts.[2] Occasionally, again, a weaker band may seek and obtain assistance from a stronger neighbour. Thus the men of several Auen bands united with some Naron to attack another Auen band, although once the fight was over the alliance was dissolved.[3] Such alliances are never of a binding or permanent nature, nor does it appear that the different bands of the same tribe are commonly organized together for political purposes. But the occurrence of such interrelations as have just been noted definitely indicates that there must be some form of regulated intercourse between neighbouring bands. Without further research in the field, however, no additional light can be thrown upon the nature and mechanisms of this intercourse.

On the other hand, the relations between neighbouring bands are not always friendly. Homicide, trespass, theft, adultery and wife-stealing give rise to quarrels and conflicts which generally assume the form of a blood feud and may even lead to war.[4] Trespass especially is a frequent cause of dispute, as all the Bushmen readily attack those who encroach on their land. This applies not only to other Bushmen,

[1] Kaufmann, "Die Auin," 157.
[2] Lebzelter, "Bei den 'Kun-Buschleuten," 13.
[3] Kaufmann, op. cit., 154.
[4] Kaufmann, op. cit., 148, 154; Trenk, "Buschleute der Namib," 169, 170; Zastrow, "Ueber die Buschleute," 13; Seiner, "Bereisung der Omaheke," 303; D. F. Bleek, *Naron*, 40; Fourie, "Bushmen of S.W.A.," 85.

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immune to the effects of snake and scorpion poison.[1] One of these animals is killed, and its poison, diluted with water and urine, is rubbed in small quantities into small cuts made in the skin, or the poison sacs are pulped and boiled, and then swallowed in small doses. Schinz records an experiment made by himself on a Bushman doctor claiming this immunity.[2] He selected twelve scorpions and placed them, by means of forceps, on different parts of the man's body—hands, legs, arms, mouth, and testicles. Almost all of them stung the flesh deeply once or twice, in every instance causing a large drop of white matter to appear; then they crawled about leisurely, but made no further attempts at stinging. "The old man maintained that he felt no pain, and I have no reason to distrust him, as he would hardly have allowed himself to be stung by scorpions on the most sensitive parts of his body, merely to satisfy my curiosity, if the poison would have had any effects on him; even a full hour after our attempt the spots where he had been stung showed not the slightest change." This experiment seems therefore to show that there may be some foundation to the claim of immunity. The inoculation was apparently made in this case during the apprenticeship of the "doctor", under the direction of his master. Our main authorities on the Bushmen do not mention this practice at all, but I have myself spoken to several detribalized Bushmen and Nama in Little Namaqualand who claimed a similar immunity. Unfortunately I neglected to inquire further into the matter, beyond ascertaining the means of immunization.

Knowledge of Times and Seasons

In their system of time-reckoning the Bushmen make use chiefly of meteorological elements, based on recurrent changes in wind and weather, and of astronomical elements, based on observations of the sun, stars, and moon. Their larger divisions of time are the seasons, which, owing to their effect on the food supply and on the movements of the people, assume a pronounced importance in Bushman life. The division of the seasons is established by the rainfall. The Cape Bushmen distinguished four seasons, rendered by Bleek and Lloyd in the English equivalents of spring, summer, autumn, and winter, but the exact meaning of the native terms is not given.

[1] Campbell, *Journey in S. Africa*, 441; Thompson, *Travels in S. Africa*, i, 399; Cornell, *The Glamour of Prospecting*, 232.
[2] Op. cit., 395–6.